U.S. FISH AND WILDLIFE SERVICE
SPECIES ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: Physaria tuplashensis (formerly classified as Lesquerella tuplashensis, see Taxonomy)

COMMON NAME: White Bluffs bladderpod

LEAD REGION: Region 1

INFORMATION CURRENT AS OF: October 2005

STATUS/ACTION

___ Species assessment - determined we do not have sufficient information on file to support a proposal to list the species and, therefore, it was not elevated to Candidate status
___ New candidate
_X__ Continuing candidate
___ Non-petitioned
_X__ Petitioned - Date petition received: _May 11, 2004
__ 90-day positive - FR date:
__ 12-month warranted but precluded - FR date:
__ Did the petition request a reclassification of a listed species?

FOR PETITIONED CANDIDATE SPECIES:
a. Is listing warranted (if yes, see summary of threats below)? Yes
b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? Yes
c. If the answer to a. and b. is "yes", provide an explanation of why the action is precluded.: We find that the immediate issuance of a proposed rule and timely promulgation of a final rule for this species has been, for the preceding 12 months, and continues to be, precluded by higher priority listing actions (including candidate species with lower LPNs). During the past 12 months, almost our entire national listing budget has been consumed by work on various listing actions to comply with court orders and court-approved settlement agreements, meeting statutory deadlines for petition findings or listing determinations, emergency listing evaluations and determinations, and essential litigation-related, administrative, and program management tasks. We will continue to monitor the status of this species as new information becomes available. This review will determine if a change in status is warranted, including the need to make prompt use of emergency listing procedures. For information on listing actions taken over the past 12 months, see the discussion of "Progress on Revising the Lists," in the current Candidate Notice of Review which can be viewed on our Internet website (http://endangered.fws.gov/).

___ Listing priority change
Former LP: ___
New LP: ___

Date when the species first became a Candidate (as currently defined): October 25, 1999

___ Candidate removal: Former LPN: ___

___ A – Taxon is more abundant or widespread than previously believed or not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.

___U – Taxon not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status due, in part or totally, to conservation efforts that remove or reduce the threats to the species.

___ F – Range is no longer a U.S. territory.

___ I – Insufficient information exists on biological vulnerability and threats to support listing.

___ M – Taxon mistakenly included in past notice of review.

___ N – Taxon does not meet the Act's definition of "species."

___ X – Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Flowering plants; Cruciferae (Mustard Family)

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Washington

CURRENT STATES/COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE: Franklin County, Washington

LAND OWNERSHIP Approximately 85 percent of the population occurs on the Hanford National Monument, which is jointly managed by the U.S. Fish and Wildlife Service (Service) and the Department of Energy (DOE). The balance of the species current distribution occurs on adjacent private land.

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LEAD FIELD OFFICE CONTACT: Linda Hallock, Upper Columbia Fish and Wildlife Office, Spokane, Washington, (509) 891-6839, Linda_Hallock@fws.gov

BIOLOGICAL INFORMATION

Species Description

Physaria tuplashensis is a low-growing, herbaceous, perennial plant with a sturdy tap root and a dense rosette of broad gray-green pubescent leaves. The species produces showy yellow flowers on relatively short stems in May, June, and July.

Taxonomy

Although specimens of this taxon were originally collected from a population in 1883, the material was in poor condition, no definitive identification could be made, and the plant was not recognized as a species at that time. The population was rediscovered in 1994, and was described and published as a species, Lesquerella tuplashensis, by Rollins et al. (1996). A recent petition requesting that L. tuplashensis be listed as threatened under the Act states that its status as a valid species is uncontroversial (CBD 2004). However, the nomenclature/taxonomy of the species is now being investigated and may change. Simmons (2000) suggested that L. tuplashensis may be an ecotype of the more common L. douglasii. In addition, recent work by Al-Shehbaz and O'Kane (2002) has suggested that the Lesquerella and Physaria genera should be united as Physaria, and that L. tuplashensis should be reduced to Physaria douglasii subspecies tuplashensis. A large-scale morphometric and common garden study has been undertaken to investigate these questions. The results of the study show statistically significant morphometric differences between L. tuplashensis and multiple populations of L. douglasii, and these significant morphometric differences were maintained in a common garden environment with plants of both taxa grown from seed. Caplow et al. (2005) recommend accepting the new genus name of Physaria and propose a new combination: Physaria tuplashensis .

When informed taxonomic opinion is not unanimous, the Service must evaluate the available information and come to our own adequately documented conclusions for species listing actions undertaken pursuant to section 4 of the Act (USFWS 1992). We have carefully reviewed the available taxonomic information, and have determined that we will continue to consider the taxon as a full species, and now recognize it under the combined genus as Physaria tuplashensis.

Habitat/Life History

The only known population of P. tuplashensis is found primarily on near-vertical exposures of cemented, highly alkaline, calcium carbonate paleosol (a "caliche" soil). This hard calcium carbonate paleosol caps several hundred feet of alkaline, easily eroded, lacustrine sediments of the Ringold Formation. The species may be an obligate calciphile, as are many of the endemic species of Physaria (formerly Lesquerella) (Rollins and Shaw 1973). The habitat is arid, with rainfall of about 6 inches (15 centimeters) per year, and there is little other vegetation in the area (Caplow 2003).

Because of its recent discovery and limited range, little is known of the species' life history. In a presentation of preliminary life history studies, Dunwiddie et al. (2000) reported that most individuals reach reproductive condition in their first or second year, most adult plants flower every year, and that the life span of the species is probably 4 to 5 years. The population appears to vary from year to year, and the survival of seedlings and adults appears to be highly variable (Dunwiddie et al. 2000).

Historical and Current Range/Distribution

The taxon was recognized as a species in 1996, and is only known from a single population that occurs along the upper edge of the White Bluffs of the Columbia River, Franklin County, Washington. The population occurs intermittently in a narrow band (usually less than 33 feet (ft)

(10 meters (m)) wide) along an approximately 10.6 mile (mi) (17 kilometer (km)) stretch of the river bluffs (Rollins et al. 1996). Most of the species distribution (85 percent) is within the recently established Hanford Reach National Monument / Saddle Mountain National Wildlife Refuge (Hanford Reach National Monument), managed jointly by the Service and the Department of Energy (DOE) (USFWS 2002). The remainder of the species' distribution is on adjacent private land (Caplow 2003).

Population Estimates/Status

The size of the population varies considerably between years, but censuses in the late 1990s estimated over 50,000 adult (flowering) plants in years of high population (Caplow 2003). The species is State-listed as Threatened, with a G2 (i.e., imperiled world-wide, very vulnerable to extinction) global ranking and an S2 (i.e., very vulnerable to extirpation) State ranking (WDNR 2005).

DISTINCT POPULATION SEGMENT REVIEW n/a

THREATS

A. The present or threatened destruction, modification, or curtailment of its habitat or range. The habitat in approximately 3.7 mi (6.0 km), or about 35 percent of the known range of P. tuplashensis, has been moderately to severely altered by landslides between 1970 and 1997. P. tuplashensis plants have not been found in areas that have been disturbed by landslides, regardless of whether the landslide disturbance is moderate or severe. With one exception, water, particularly water from irrigated agriculture adjacent to the bluffs, is the primary factor triggering the mass-failures along the White Bluffs (Lindsay 1997). There do not appear to have been significant land slides in the modern era before the advent of agriculture on the land upslope of the bluffs. Active farming has occurred on these lands since at least the early 1970s (Lindsay 1997). The entire population of P. tuplashensis is down-slope of irrigated agricultural land, and is at risk of landslides induced by water-seepage particularly from ponds and large, permanent wastewater ways. The threat is greater in the southern portion of the species distribution where irrigated agriculture is closest, and in several locations directly adjacent, to the bluffs (Heidi Newsome, Hanford Reach National Monument, pers. comm. 2004). Because the species occupies a specific geological formation, no new habitat is developing. Any increase in irrigation on these lands that alters the hydrologic conditions of the general area will increase the probability of landslides. The loss of habitat to landslides appears to be permanent.

The bluffs in the vicinity of the plant have been fairly stable. There is no seep line in the part of the bluffs occupied by the species, and the landslides that have occurred sine 1997 are not in the immediate vicinity (Greg Hughes, Hanford Reach National Monument, 2005).

Yellow star thistle (Centaurea solstitialis), a nonnative weed that is known as a rapid invader of arid environments even in the absence of disturbance, has been documented in the vicinity of the P. tuplashensis population (Florence Caplow, Washington Department of Natural Resources (WDNR), pers. comm. 1999). Off-road vehicles (ORVs) (e.g., dirt bikes, three- and four-wheelers) may also threaten the species by potentially crushing plants, destabilizing the soil, and spreading seeds of invasive plants. Although ORV activity is prohibited on the monument, it

occurs intermittently within the federally-managed portion of the species' distribution. ORV activity is more common within the private portion of the species' distribution. ORV activity has increased soil disturbance and erosion in the area, and has destroyed individual plants that occur on more moderate slopes (F. Caplow, pers. comm. 1999).

B. Overutilization for commercial, recreational, scientific, or educational purposes. There is no evidence of commercial, recreational, scientific, or educational use of P. tuplashensis, although the species is very showy while flowering and it may be subject to occasional collection by the public.

C. Disease or predation. Some predation by larval insects on developing fruits of P. tuplashensis has been observed since 1996 (TNC 1998). More thorough investigations are necessary to determine whether this may represent a significant threat to the species by negatively impacting its seed production.

D. The inadequacy of existing regulatory mechanisms
Physaria tuplashensis was added to Washington's list of endangered, threatened, and sensitive vascular plants in 1997 as Lesquerella tuplashensis, and is designated as threatened (WDNR 2005). However, there is no State legislation comparable to the Federal Endangered Species Act for plants in Washington. Therefore, this classification confers no formal protection to the species. The Department of Energy (DOE), current manager of this species' habitat, has no rare plant policy that provides specific protection for this species. However, the Service now manages DOE lands of the Hanford Reach National Monument where P. tuplashensis is found and has initiated development of a Comprehensive Conservation Plan/ Environmental Impact Statement (CCP) for the Monument. The CCP/EIS is expected to provide protective measures that would benefit P. tuplashensis, although completion of the CCP/EIS is not anticipated for another year or two.(D. Smith, pers.comm 2005)

E. Other natural or manmade factors affecting its continued existence. Part of the P. tuplashensis population lies adjacent to an access point along the river, making the plants more vulnerable to occasional collecting and increasing the risk of impacts resulting from establishment of non-native species. Although a large portion of the population is on Federal land, the area boundary is generally not marked or fenced, which results in unauthorized access by ORVs to the Hanford Reach National Monument. Also pollinators of P. tuplashensis are subject to potential negative affect by pesticide use on orchards and other irrigated fields in the vicinity of the population. Finally, the population is likely naturally limited by the scarcity of its highly specific substrate.

CONSERVATION MEASURES PLANNED OR IMPLEMENTED

No formal conservation agreements for this species are currently in place. However, the Hanford Reach National Monument is developing a landscape-level Comprehensive Conservation Plan/ Environmental Impact Statement (CCP/EIS) that will address potential land use and conservation of this species (D. Smith, pers. comm.. 2005). The CCP/EIS is expected to provide beneficial protections to protect Physaria tuplashensis, although completion of the CCP/EIS is not anticipated for another year or two. Currently, there are protective measures in place,

including barriers logs to prevent access at openings where people and ORVs can traverse the habitat. Although the logs cannot prevent all foot access, they present a physical deterrent to both pedestrians and ORVs. Discussions regarding draining one or more of the upslope ponds are in progress with the manager of some of the lands in question. In addition, Monument management has begun efforts to control star thistle. (G. Hughes, pers. comm., 2005).

SUMMARY OF THREATS

The major threat to the species is believed to be mass-failure landslides caused by groundwater movement from adjacent, up-slope agricultural activities. The entire population of P. tuplashensis is down-slope of irrigated agricultural land and is potentially at risk of landslides induced by water-seepage, particularly water from irrigated agriculture adjacent to the river bluffs. The immediate vicinity of the species is not now sliding, and does not show a seep line, the precursor to land sliding. Other significant threats include physical damage to plants and to the soil from ORVs and the incursion of invasive, non-native plants.

For species that are being removed from candidate status:
___Is the removal based in whole or in part on one or more individual conservation efforts that you determined met the standards in the Policy for Evaluation of Conservation Efforts When Making Listing Decisions (PECE)?

RECOMMENDED CONSERVATION MEASURES n/a

LISTING PRIORITY

THREAT			
Magnitude	Immediacy	Taxonomy	Priority
High	Imminent	Monotypic genus	1
		Species	2
		Subspecies/population	3
	Non-imminent	Monotypic genus	4
		Species	**5***
		Subspecies/population	6
Moderate to Low	Imminent	Monotypic genus	7
		Species	8
		Subspecies/population	9
	Non-imminent	Monotypic genus	10
		Species	11
		Subspecies/population	12

Rationale for listing priority number:

Magnitude: The entire range of P. tuplashensis occurs within a narrow band approximately 33 ft (10 m) wide and 10.6 mi (17 km) long, on highly alkaline, calcareous ("caliche") soils. The primary threat to the population is mass-failure landslides resulting from irrigation seepage from nearby agricultural land. To date, the habitat in approximately 35 percent of the range has been moderately to severely damaged by seepage and associated landslides. The species is not found in areas following landslides, and any such alteration of the habitat appears to be permanent. Irrigated agriculture is an established land use in the area and ongoing seepage and resulting landslides remain a significant threat to the species. The presence of ORVs and invasive, non-native plants are further threats. We currently consider the magnitude of threat to P. tuplashensis to be high, primarily because the species and its habitat occurs over such a limited area and it is threatened by localized events and invasive plants.

Imminence: Physaria. tuplashensis is inherently vulnerable because it is a narrow endemic. However, landslides causing loss of habitat and individuals, the primary threat, have not occurred in recent years. The primary cause of the land slides, water seepage from agriculture, appears to have stabilized, and slides do not appear to be imminent in the occupied range of the species. Invasive plants are present in the vicinity, but have not yet been documented as a major problem, and measures to attempt control have been started. The existing threats to the species are unlikely to increase in the immediate future, except for possible incursion by invasive plants. Currently, we know of no plans to expand or significantly modify the existing agricultural activities in the areas adjacent to the population. In addition, deliberate modification of the species' immediate habitat is unlikely due to its relatively inaccessible location and the location of 85 percent of its total distribution on federally-managed property. Finally, there is no known trade or harvest of the species, aside from occasional collection. The impacts from recreational activities are not likely to change. Based on the available information, we currently consider these threats to be non-imminent.

We currently consider P. tuplashensis to be a full species within a multi-species genus. Therefore, its listing priority is 5 (see above table).

Yes Have you promptly reviewed all of the information received regarding the species for the purpose of determining whether emergency listing is needed?

Is Emergency Listing Warranted? No. There have been no recent changes in the magnitude or imminence of threats to P. tuplashensis, and we do not consider these as immediate threats to the species continued existence.

DESCRIPTION OF MONITORING

Monitoring efforts for P. tuplashensis began in 1997, with initial funding provided by the National Fish and Wildlife Foundation. Because the species has a relatively long, narrow distribution, a sub-sample approach was implemented to census the population. The WDNR's Natural Heritage Program, The Nature Conservancy, Calypso Consulting, and volunteers monitored permanent sites to investigate the life history characteristics of the species from 1997 through 2002. In addition, permanent transects to track changes in the population's size were

monitored every 1 to 2 years during the same period. The permanent transects were last monitored in 2002, when a decision was made to monitor them every 3-5 years. (F. Caplow, pers. comm. 2004). The current level of monitoring is considered sufficient because the occurrences of landslides, which are the primary threat to the species, are intermittent over a multi-year time frame, have not occurred in recent years, and no expansion of the upslope agricultural activities are currently anticipated. Field monitoring has shown wide annual fluctuations in the number and location of flowering plants.

COORDINATION WITH STATES

Indicate which State(s) (within the range of the species) provided information or comments on the species or latest species assessment: Washington

Indicate which State(s) did not provide any information or comments: n/a

LITERATURE CITED

Al-Shehbaz, I.A. and S.L. O'Kane. 2002. Lesquerella is united with Physaria. Novon 12: 319-329.

Caplow, F.E. 2003. Current Status of White Bluffs bladderpod (Lesquerella tuplashensis) on the Hanford site. In: Evans, J.R., L.P. Marita, and P.W. Dunwiddie, eds., Biodiversity studies of the Hanford site, final report: 2002-2003. The Nature Conservancy, Seattle, Washington.

Caplow, F.E., P. Dunwiddie, D .Reynolds, K.A. Beck, and T.N. Kaye. 2005. Evidence for the recognition of Physaria tuplashensis (Brassicaceae). Unpublished manuscript on file, U.S. Fish and Wildlife Service, Spokane, Washington.

CBD, J. Goodall, E.O. Wilson, P. Ehrlich, J. Terborgh, N. Eldridge, T. Eisner, R. Hass, B. Kingsolver, C. Bowden, M. Sheen, the Xerces Society, and the Biodiversity Conservation Alliance. 2004. Center for Biological Diversity Candidate Petition Project - Plants, Tucson, Arizona. 226 pp.

Dunwiddie, P., F. Caplow, and K. Beck. 2000. Demographic studies of Lesquerella tuplashensis. Power point presentation on file, U.S. Fish and Wildlife Service, Spokane, Washington.

Lindsey, K.A. 1997. Aerial photographic evaluation of mass movement timing, size, and causes for part of the White Bluffs of the Columbia River, South-Central Washington. Report prepared for The Nature Conservancy, Seattle, Washington. 22 pp.

Rollins, R.C., K.A. Beck and F.E. Caplow. 1996. An undescribed species of Lesquerella (Cruciferae) from the State of Washington. Rhodora. 97 (No. 891): 201-207.

Simmons, S.A. 2000. The status of Rorippa columbiae and Lesquerella douglasii on the Hanford Reach of the Columbia River in south central Washington. PhD dissertation, Washington State University, Pullman, WA.

Smith, Dave. 2005. Hanford Reach National Monument Comprehensive Conservation Planning Division. Personal communication with Barbara Amidon, USFWS, Portland, Oregon.

TNC. 1998. Conservation of two new plant species. Final report by The Nature Conservancy, Seattle, Washington. 10pp.

USFWS. 1992. Taxonomy and the Endangered Species Act. Memorandum of the U.S. Fish and Wildlife Service, November 25, 1992, Washington, D.C. 3 pp.

USFWS. 2002. Hanford Reach National Monument / Saddle Mountain National Wildlife Refuge: Wildlife and Habitat Review. U.S. Fish and Wildlife Service, Richland, Washington. Agency report on file.

WDNR. 2005. Washington Department of Natural Resources, Natural Heritage Program Website, www.dnr.wa.gov/nhp/.

APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes, including elevations or removals from candidate status and listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all resubmitted 12-month petition findings, additions or removal of species from candidate status, and listing priority changes.

Approve: Acting _____ 11/16/05
Regional Director, Fish and Wildlife Service Date

_____

Concur: _____ August 23, 2006
Director, Fish and Wildlife Service Date

Do not concur: _____
Director, Fish and Wildlife Service Date

Date of annual review: October 6, 2005
Conducted by: Linda Hallock